



ATARI COMPUTER ENTHUSIASTS [N.S.W.]

A.C.E. (N.S.W.)
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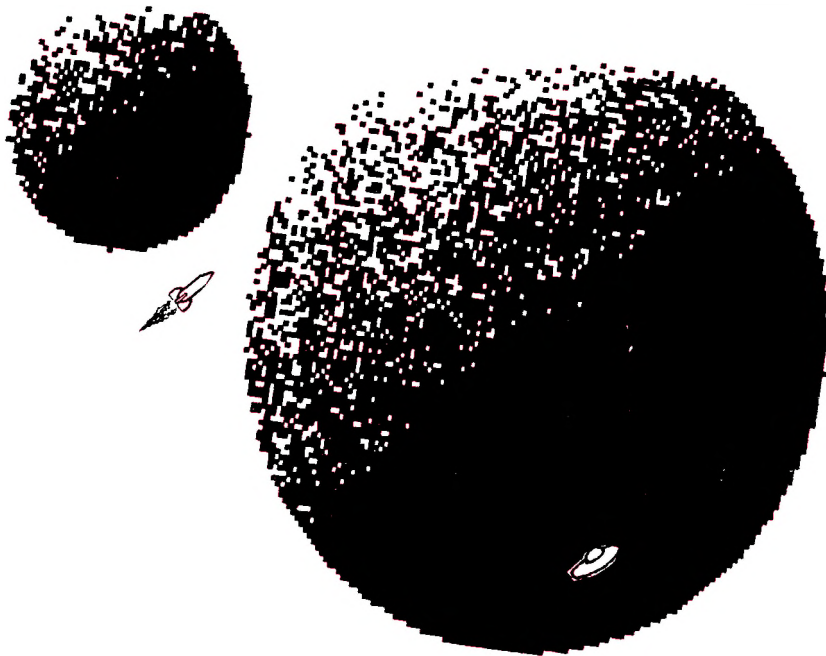
COBALT CRUADERS

CD-ROM



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EDITORIAL



Once again it is time for my bi-monthly ramble. Umm where to start? I know I'll talk about something that is very dear to the hearts of all of us who serve on the committee: FEEDBACK.

feedback 'fidbaek', n an indication of the reaction of the recipient, as of an audience.

As a member of the committee I feel, and I'm sure my fellow colleagues feel the same way, that it is extremely difficult to gauge how successful we have been in running the club without some sort of feedback. Feedback is essential if the Club as a whole is to benefit. Whether it be articles for the magazines, programs for the software exchange, ideas for meetings, general sugestions, praise or criticisms it will give us an indication of our strengths and weaknesses. The survey was a great help but don't think that because you sent it in, that is all we want to hear from you.

The Club belongs to the members (you) not to the Committee, and it is your money not the Committee's so give us some feedback, just remember it is a good committee and we do not bite.

The Software Exchange now has 36 titles with more on the way, a complete list of the titles appears inside this issue. The BBS new number is (02) 529-2059. The old number (02) 529-8249 is Larry's private number & CSACE BBS and is accessable to ACE members free of charge. Larry has had his ST running the BBS so give both a ring. There is also a new Atari BBS being run by Tony Myatt. It is on a trial run, so why don't you give him a ring, the board operates between 7pm and 11pm and the number is (02) 601-1207.

The July meeting was a great success, with two STs, one a 520 and the other a 1040 show graphic and sound demonstrations. Meetbeat will contain a full report of the meeting. Many thanks to all who brought in hardware, there were computers, a midi, a stereo system and cables galore. Special thanks to Danny Williams & Kevin Frith from Mobex who informed us on the last news on Atari, and for answering the members' questions.

Before I forget the September meeting will have on its agenda, digitizers, on both the 8-bits and STs so don't miss it. The November meeting is also the Annual General Meeting where the new committee is elected, so if you wish to run for one of the positions start sending in nominations, this is another way you can serve your club.

Craig Armsworth

```

1 REM ~~~~~ 14 COLOR 10:PLOT 0,Y:DRAWTO 79,Y:NEXT X
2 REM # PYRAMID # Y 100 COLOR 0
3 REM # by Mark Causton # 20 C=0 110 FOR X=10 TO 39:C=C+0.5
4 REM # Reprinted from M.A Atari # 30 FOR Y=45 TO 191:C=C+0.1 120 COLOR C:PLOT 39,191:DRAWTO X,96:NE
5 REM # Computer Club June 1986 # 40 COLOR C:PLOT 0,Y:DRAWTO 79,Y:NEXT Y XT X
6 REM # Published by Atari Computer # 50 C=0 130 FOR X=39 TO 68:C=C-0.5
7 REM # Enthusiasts (N.S.W.) # 60 FOR X=10 TO 39:C=C+0.5 140 COLOR C:PLOT 39,191:DRAWTO X,96:NE
8 REM # AUGUST 1986 # 70 COLOR C:PLOT 39,0:DRAWTO X,96:NEXT XT X
9 REM ~~~~~ X 150 GOTO 150
10 GRAPHICS 9 80 FOR X=39 TO 68:C=C-0.5
12 FOR Y=0 TO 44 90 COLOR C:PLOT 39,0:DRAWTO X,96:NEXT

```

OOPS!!



The program para-bounce has a slight bug in it, the string A\$ must appear first in the variable table as A\$ is used to enable fast verticle movement. To fix this problem change the program as follows;

```
B DIM A$(512)
126 DIM B$(20),DIFF$(20),W1$(20),W2$(20),W3$(20),C$(512),D$(20)
```

The program paymaster has a slightly larger bug, lines 6950 - 7200 are missing from the printout, they follow;

```
6950 POSITION 11,3:POSITION 11,3:? CL$ " " 7107 POSITION 2,17:? " |
(1,26) 7060 POSITION 4,21:? "< M > FOR MENU |"
6952 POSITION 11,5:POSITION 11,5:? CL$ ":POSITION 4,22:? "< D > TO DELETE EM 7108 POSITION 2,18:? " |
(1,21) PLOYEE";GOSUB 1000 |"
6954 POSITION 17,7:POSITION 17,7:? CL$ 7070 IF KEY=77 OR KEY=109 THEN CLOSE # 7110 CLOSE #2:CLOSE #3:GOTO 7000
(1,21) 2:CLOSE #3:RETURN 7120 POSITION 4,21:? "
6956 POSITION 9,9:POSITION 9,9:? CL$(1 7080 IF KEY=68 OR KEY=100 THEN 7090 "
, "" 7085 GOTO 7060 7130 POSITION 2,15:? " |
6. POSITION 12,15:? SP$ 7090 POSITION 12,5:INPUT NAME$:POSITIO |":POSITION 2,16:?
6962 POSITION 12,16:? SP$ N 12,5:? NAME$;" ":POKE 752,1 |" PLEASE WAIT - DELETING |"
6964 POSITION 12,17:? SP$ 7091 IF NAME$("< * >") THEN 7098 7140 POSITION 2,17:? " |
6966 POSITION 12,18:? SP$ 7092 POSITION 4,21:? " |"
6970 POSITION 33,16:? SP$ ":POSITION 4,22:? CL$ 7150 POSITION 2,18:? " |
6972 POSITION 33,17:? SP$ 7093 POSITION 2,15:? " |":POSITION 2,16:?
6974 POSITION 33,18:? SP$ |"
6976 IF X=1 OR X=2 THEN RETURN 34 | DELETE ALL EMPLOYEES (Y/N) |"
6980 GOTO 6860 7094 POSITION 2,17:? " |"
6999 REM DELETE OLD EMPLOYEE |"
7000 GRAPHICS 0:POKE 710,50 7095 POSITION 2,18:? " |":POSITION 2,16:?
7010 POSITION 10,1:? "DELETE EMPLOYEE |" CHR$(253) 7100 IF KEY=80 OR KEY=112 THEN 7120
|" 7096 GOSUB 1000:IF KEY=89 OR KEY=121 T 7105 POSITION 4,21:? "
7020 OPEN #2,4,0,"D:EMPLOYEE":OPEN #3, HEN 7098 7106 POSITION 2,15:? " |":POSITION 2,16:?
8,0,"D:EMPL.BAK" 7097 GOTO 7040 7107 POSITION 2,17:? " |"
7030 POSITION 2,5:? "EMPLOYEE:" 7098 POSITION 4,21:? "< P > TO PROCEE 7108 POSITION 2,18:? " |":POSITION 2,16:?
7040 POSITION 2,14:? " |" D":POSITION 4,22:? " |"
|" |" GOSUB 1000
705 POSITION 2,15:? " | PLEASE ENTER 7100 IF KEY=80 OR KEY=112 THEN 7120
NAME OF THE |":POSITION 2,16:? 7105 POSITION 4,21:? "
|" EMPLOYEE YOU WISH TO DELETE |" "
7046 POSITION 2,17:? " | ( * FOR ALL 7106 POSITION 2,15:? " |":POSITION 2,16:?
EMPLOYEES ) |" |"
7050 POSITION 2,18:? " |" EMPLOYEE MAINTAINED |"
```



```
1 REM ***** 9 REM ***** 60 FOR Y=-R TO R
2 REM # PLANETS # 10 GRAPHICS 0:POKE 710,0:POKE 709,14:C 70 X1=INT(5QR(R*R-Y*Y))
3 REM # by Mark Causton # 0LOR 1 80 FOR X=-X1 TO X1
4 REM # Reprinted from M.A Atari # 20 R=60:XC=180:YC=100 90 N=-INT(RND(1)*X1*2)+1
5 REM # Computer Club June 1986 # 30 GOSUB 60 100 IF N(X+Y THEN PLOT X+XC,Y+YC
6 REM # Published by Atari Computer # 40 R=25:XC=90:YC=70 110 NEXT X:NEXT Y:RETURN
7 REM # Enthusiasts (N.S.W.) # 45 GOSUB 60
8 REM # AUGUST 1986 # 50 GOTO 50
```



BOOK REVIEW



by Lance Munday
South Penrith

BASIC ON THE ATARI COMPUTER FOR KIDS

While roaming through Computer One's bookshelf, I discovered this book, it is aimed at the young user, or indeed any first time user of the Atari Computer. The use of large print makes it easy for children to read and therefore helps in their understanding of the computer.

There is a step-by-step approach to introduce Kids to the Atari Computer. It starts by covering the basic aspects of 'What is a Computer' and also the keyboard layout from letters and numbers to cursor and graphic keys.

The book is then divided into three parts, Basic Part I, Basic Part II and Graphics & Sound.

Basic Part I, introduces simple programming on the Atari. Kids learn to PRINT a statement, to do maths, to use line numbers, to LIST a programme and the use of the GOTO command.

In Basic Part II more complex programming commands are introduced such as, FOR/NEXT STEP, FOR/NEXT time delay, IF/THEN and INPUT. This section also shows how to save time and space by structuring programmes correctly.

The Graphics & Sound section takes the Kids into large text and shapes, the use of colours and of the different Graphics modes. After mastering graphics they are led into sound and the Ataris four voices, there is also some simple programmes of their favourite songs.

After each section there is a review of the lessons covered which help the children to understand and to experiment with the new concepts that they were taught.



by JEFF MADDOCK

Would you like to be able to put flashing TEXT in Multi Colours into your programs without having to do Display List Interrupts?

The following program will show you an easy way to do flashing text in colour.

All underlined LETTERS should be typed as INVERSE.

```
10 REM LETTERS IN COLOUR
20 GRAPHICS 18:REM GRAPHICS SCREEN 2+16 = NO TEXT WINDOW
25 POKE 712,0:REM BACKGROUND COLOUR
30 ? #6;" ThIs Is An ExAmPlE"
31 ? #6;"           oF "
32 ? #6;"       fLAsHiNg TExt    "
33 ? #6: ? #6
34 ? #6;"           By"
35 ? #6;"       jEfF MaDdOck"
36 ? #6
37 ? #6;"           TO end "
38 ? #6;"       PRESS select "
40 GOSUB 100:POKE 708,COLOUR:REM UPPERCASE COLOUR
45 GOSUB 200
50 GOSUB 100:POKE 709,COLOUR:REM lowercase colour
55 GOSUB 200
60 GOSUB 100:POKE 710,COLOUR:REM INVERSE UPPERCASE COLOUR
65 GOSUB 200
70 GOSUB 100:POKE 711,COLOUR:REM inverse lowercase colour
75 GOSUB 200
80 IF PEEK(53279)<>7 THEN LIST :END
90 GOTO 40
99 REM RANDOM NUMBER SUBROUTINE
100 COLOUR=PEEK(53770)
110 IF COLOUR>230 THEN 100
120 RETURN
199 REM WAIT SUBROUTINE
200   FOR WAIT=1 TO 5:NEXT WAIT
210 RETURN
```

```
POKE 708,NUMBER = (COLOUR OF UPPERCASE TEXT)
POKE 709,NUMBER = (colour of lowercase text)
POKE 710,NUMBER = (COLOUR OF INVERSE UPPERCASE TEXT)
POKE 711,NUMBER = (colour of inverse lowercase text)
POKE 712,NUMBER = (COLOUR OF BACKGROUND)
```

Pokes 708 to 712 applies to TEXT colours when using GRAPHICS MODES 1 OR 2...

Also try these POKES in the other GRAPHICS MODES 3 to 11.

If you would like more INFO on the other POKE locations in the ATARIs then please write to the EDITOR and he will pass the messages on to me.

THANK YOU
JEFF MADDOCK.



CD-ROM

by Geoff Ashworth
Farrer, A.C.T.



Introduction to CD-ROM

The leaps and bounds that computer technology is taking today would leave most scientists and programmers of last decade gasping for air, even though their chins would be on the floor. Back in the fifties and sixties when everyone thought that valves were pretty hot stuff, they could not have even dreamed that their so called 'supercomputers' such as the likes of ENIAC would be outperformed in only twenty years by a computer which could sit on someone's lap rather than taking an entire floor of an office building.

Well, whoever said that history never repeats was no optimist when it comes to technological breakthroughs. It seems that another major development in computer technology is set to change our outlook on what we can achieve if we keep pressing forward. This new development is not in the field of processing power or speed, or even another generation of computer, but of data storage. The CD-ROM disk, which is smaller than a 45rpm record, is destined to become the David of a computer environment filled with Goliaths.

CD-ROM, standing for Compact Disk Read Only Memory, brings a new series of hardware and media into the field of mass data storage. It claims a storage density upwards of 500 megabytes on a disk that is smaller than a 5 1/4 inch floppy disk. The secret? Laser technology!

The Old and the New

Most computers today rely on some type of magnetic writing device and media to store the bulk of their data onto. This method of data storage is a fairly inefficient by comparison to what is now unfolding. The reason for this inefficiency is that the magnetic field generated by the head of the read/write device cannot be focused into a small enough field of influence for compact and efficient data storage. If groups of data are put physically too close to each other on a magnetic medium, they can interfere with the domain of some of the ferromagnetic particles that may hold segments of important data. These ferromagnetic particles make up the data storage element of a magnetic medium and may be scrambled by any stray magnetic field resulting in the loss of readable data. If, in the other extreme, the groups of data are stored too far apart from each other, efficiency and economy are lost. What we really need is a new means of data storage that is easily written and read with greater density and speed than conventional magnetic means.

Laser technology puts an end to data loss and wasteful storage.

The Laser Disk

The data storage component of a CD-ROM disk, like an audio compact disk, is a reflective aluminium layer only about 500 angstroms thick which has been 'sputtered' on a body of plastic. Small 'data pits' are embossed into the surface of the disk to hold the data, which is yet to be written, and to help in keeping the laser on track when reading as well as acting as a timing element to keep the the disk spinning at the correct speed. This last point is very important. The

disk is recorded in a format known as 'Constant-Linear-Velocity' mode. This means that equal amounts of data occupy equal lengths of the spiral track that makes up the disk. Unlike an LP record that spins at a constant speed (Constant-Angular-Velocity), a laser disk will spin at different speeds depending on what part of the disk is being read. For example, when reading a piece of data on the inside of the disk, the disk will spin faster than when reading a similar piece of data on the outside of the disk (About 500 RPM at the inside, and about 200 RPM at the outside).

Recording Data

A fine laser beam, only 780 nanometres wide, is used to burn a tiny hole or deformity into pits on the disk. This hole then represents a 1 bit, a 0 bit being no change in the surface of the disk. At this time, some manufacturers choose to write additional data on to the disk such as block-headers and sector-identification labels. These pieces of data can also be embossed when the disk is initially moulded.

Reading a Disk

Data from a laser disk is read by a very low-powered laser (usually less than 5 milliwatts). The beam of laser light firstly travels from the laser itself, through a series of lenses, mirrors and prisms onto the disk. When the laser light strikes a pit, the polarity of the light changes. This newly polarized light travels back along the path whence it came to a special prism called a Wollaston prism. This diverts the data carrying light onto a photosensitive device, which then decodes the laser light into a digital signal, ready to be transferred to the computer.

No Errors

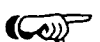
Along the way, the laser light meets several error correcting techniques. Firstly, the laser beam must be kept in sharp focus to be able to see through dust and grease on the outer protective layer of the disk, yet be able to pick up every bit of data. A beam of laser light that is out of focus can be detected if, when the beam is passed through a certain prism, the resulting pattern on a set of four photosensitive cells is not circular. This information is then passed along to a 'voice-coil' lens which brings the beam back into focus by moving up or down.

The second technique of error detection is of a laser beam that is 'off-track' i.e. is not directly over the pits. Two lower-powered laser beams either side of the main beam look to see if one or the other is in a pit. If one is, then they signal the tracking mirror to rotate to put the main beam back into line.

The third kind of error trapping is not a hardware one, but one which uses software that is internal to the CD-ROM player. This technique is known as the Reed Solomon Cross Interleave Code (CIRC). This error correction technique is useful on disks of less than perfect quality, such as ones that are warped.

Beyond CD-ROM?

The major drawback to CD-ROM is, as the name implies, that it is Read Only. Currently, though, scientists are working on designing laser disks which are capable of being written and erased many times over. One such process that may allow this breakthrough is called



'magneto-optical recording'. This process, as you may have guessed involves the combined use of both magnets and laser light. The process works like this. Firstly, the general area that is to contain a piece of data is temporarily magnetized. Then, the precise spot is heated to a specific temperature called the 'Curie' point by a powerful laser. This has the effect of magnetizing only the spot that was heated by the laser light, not the whole area that was under the magnetic influence. Once fully written, the data can be read optically because of a special phenomenon discovered by Sir Michael Faraday. He found that light reflected from a magnetized surface is polarized slightly. This small polarization allows a photoelectric cell to differentiate between the normal laser light and the polarized laser light. Because the spot is magnetized, it can easily be erased and written over again and again.

Epilogue

The advances that laser technology has brought to the field of computer mass storage is certainly destined to change it dramatically. Just think of it, a twenty-four volume encyclopedia, every game you own, the entire works of William Shakespeare, a road map of any point in the world, a telephone directory all in the palm of your hand. It is very possible that in the very near future that every computer in the world, whether it be small or large, will use laser disks for all of their storage and accessing needs, and the only place that you will be able to see a floppy disk will be in a museum, alongside ENIAC.

References

R. S. Shuford BYTE - November 1985 'CD-ROM's and Their Kin'

T. Onosko CREATIVE COMPUTING - September 1985 'Let There Be Light'

N. Friedland ANTIC - October 1985 'Bookshelf on a Laser Disk'



TIME FOR TIMES



$$3 \times 3 = 9$$



by Lance Munday
South Penrith

This programme grew out of my eight year old son wanting to 'write a programme'.

It started off very simply as a one line programme, allowing the computer to pick a number. This was then enlarged to have that random number multiplied by a second number, the answer was then checked and if correct started the process over again or if wrong gave a 'TRY

AGAIN' message.

The next step was to make it personal by asking for the users name and also to keep a check on correct and wrong answers. After ten correct answers the programme will go to an higher level or after ten wrong answers it will go to an easier level, for more practice. The correct and wrong counters are reset when moving to a new level.

Total number of correct and wrong answers and a percentage rating, allow the user to obtain an overall view of his performance. After a few rewrites the final programme was as follows.

```
1 REM #####
2 REM # TIME FOR TIMES # 340 POSITION 7,11: ? " F O R T I Y 610 POKE 559,DMA
3 REM # by LANCE MUNDAY # E S 620 ?
4 REM # Published by Atari Computer # 350 FOR DELAY=1 TO 100:NEXT DELAY 630 TRAP 380
5 REM # Enthusiasts (N.S.W.) # 360 POSITION 2,19: ? "WHAT IS YOUR NAME 640 INPUT TIMES
6 REM # AUGUST 1986 # "; 650 IF TIMES<2 OR TIMES>12 THEN 380
7 M ##### 370 INPUT NAME$ 660 ? "K"
100 DIM NAME$(10) 380 TRAP 40000 665 POSITION 3,1: ? "
110 CORRECT=0:WRONG=0:TC=0:TW=0:PC=0 390 DMA=PEEK(559) 670 POSITION 3,2: ? " CORRECT TIMES
120 POKE 752,1 400 POKE 559,0 675 POSITION 3,3: ? "
130 DMA=PEEK(559) 410 ? "K" 676 POSITION 3,4: ? " PERCENT
140 POKE 559,0 420 Z=INT(33-(LEN(NAME$)))/2 678 POSITION 3,5: ? "
150 ? "K" 430 POSITION Z,2: ? "HELLO ";NAME$ 710 POSITION 3,6: ? " TOTAL
160 ? :? :? 440 POSITION 6,4: ? "TIME TO DO YOUR TI 720 POSITION 3,7: ? " CORRECT
170 ? "===== 450 ? :? 730 POSITION 3,8: ? "
180 ? "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 460 ? " 735 POSITION 3,9: ? "
XXXXX" 470 ? " XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 742 POSITION 13,18: ? "
190 ? "=====AN EDUCATIONAL GAME===== 480 ? " X 744 POSITION 13,19: ? "XXXXXXXXXXXXX"
200 ? "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 490 ? " X CHOOSE WHICH TIMES TABLE 746 POSITION 13,20: ? "X X"
XXXXX" 500 ? " X 748 POSITION 13,21: ? "XXXXXXXXXXXXX"
210 ? "===== 510 ? " X 2 3 4 5 6 7 8 750 POSITION 13,22: ? "
220 ? "===== 520 ? " X 760 Z=INT(39-(LEN(NAME$)))/2
230 ? "===== 530 ? " X 9 10 11 12 770 POSITION Z,10: ? NAME$
240 ? "===== 540 ? " X 780 POSITION 14,11: ? "HOW MUCH IS"
250 ? "===== 550 ? " X 781 POSITION 7,3: ? CORRECT:POSITION 7,
260 ? "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 560 ? " X YOUR LEVEL WILL INCREASE 8: ? TC:POSITION 32,3: ? WRONG:POSITION
XXXXX" 570 ? " X AFTER 10 CORRECT ANSWERS 32,8: ? TW
270 ? "=====by Lance Munday===== 580 ? " X 785 M=INT(RND(1)*12)+1
280 ? "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 590 ? " XXXXXXXXXXXXXXXXXXXXXXXX 790 POSITION 14,13: ? TIMES;" TIMES "
XXXXX" 600 ? " 850 TRAP 1050
290 ? "===== 860 POSITION 18,15:INPUT ANSWER
300 POKE 559,DMA 870 IF ANSWER<>TIMES*M THEN 950
310 FOR DELAY=1 TO 300:NEXT DELAY 880 CORRECT=CORRECT+1:TC=TC+1
320 POSITION 7,9: ? " T I M E 882 IF CORRECT=10 THEN TIMES=TIMES+1:I
330 POSITION 7,10: ? " F TIMES=13 THEN TIMES=12
```

```

884 IF CORRECT=10 THEN CORRECT=0:IF CO 980 POSITION 13,22:? "A G A I N" 1050 TRAP 40000
RRECT=0 THEN WRONG=0 990 GOSUB 1120 1060 POSITION 13,18:? "I N P U T"
890 POSITION 15,20:? "CORRECT" 1000 IF WRONG=10 THEN TIMES=TIMES-1:IF 1070 POSITION 13,22:? "E R R O R"
900 POSITION 13,18:? " " 1010 IF WRONG=10 THEN WRONG=0:IF WRONG 1080 POSITION 18,15:? "
910 POSITION 13,22:? " " 1020 POSITION 7,3:? CORRECT:POSITION 7 1110 END
920 FOR DELAY=1 TO 200:NEXT DELAY 1030 GOTO 860 1120 FOR DELAY=1 TO 300:NEXT DELAY
925 POSITION 15,20:? " " 1040 END 1130 POSITION 13,18:? " "
926 POSITION 18,15:? " " 1050 GOTO 850 1140 POSITION 15,20:? "THINK"
927 PC=INT((TC/(TC+TD))*100):POSITION 1060 GOTO 850 1150 POSITION 13,22:? " "
19,6:? " ":POSITION 19,6:? PC 1070 GOTO 850 1160 RETURN
930 GOTO 781 1080 GOTO 850 1170 END
940 END 1090 GOTO 850
950 WRONG=WRONG+1:TW=TW+1 1100 GOTO 850
960 POSITION 15,20:? " WRONG " 1110 GOTO 850
970 POSITION 13,18:? "T R Y" 1120 GOTO 850

```



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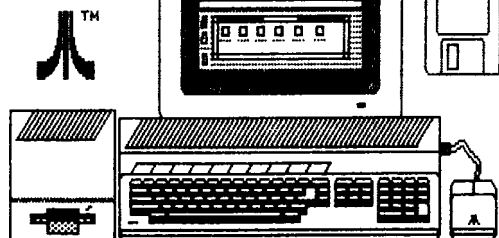
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520ST



FORUM OF AUSTRALIAN ST'S

Co-ordinator
Philip Hayne

Greeting's ST'ers, just a short column this issue. The news is mixed good and bad, first the BAD news (those who want the Good news 1st GOTO next para) due to the Deadly Dollar the prices of ST's went up around \$300 (sob..sob.).

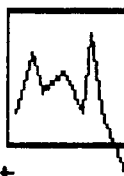
But the GOOD news is that there is/are two big ST only magazines. And both of them are supplied with a 3 1/2" disk! ANTIC has produced a quarterly magazine called 'STart' and judging from the 1st issue will keep up the fine ANTIC tradition. The other ST magazine is released next month and will be a Bi-Monthly. It is COMPUTE!'s ST Magazine & Disk. I look forward to reading it when it arrives. The Disk idea is excellent the 'STart' disk was neatly done with each article having a FOLDER for it's respective files. All the programs had their Source files as well as the Object files.

If you have a ST please write to me through the CLUB ,ST-SIG and I will add your name to the ST Special Interest Group list, so you can be easily kept up to date on ST NEWS.

Bye for now and keep ST'ng...



STATISTICS



MEAN
=11.0

by Donald Urquhart

The following programs build up a complete library of statistical analysis software. There are eleven programs in all, ten of them being statistical in nature while the other is a menu program designed to load in the stats programs. Each program is a program in its own right and can be run as such.

An understanding of statistics is an advantage in using these programs, but any literature on statistics will help you with the terms and uses of each of the programs.



```

1 REM #####
2 REM # MENU FOR STATISTICS DISK ONE#
3 REM #   by D. S. Urquhart   #
4 REM # Published by Atari Compture #
5 REM #   Enthusiasts (N.S.W.)   #
6 REM #   AUGUST 1986           #
7 REM #####
10 ? "K":? "STATISTICS DISK ONE; VERSI
ON ONE"
20 ? "CREATED BY DONALD S. URQUHART"
30 ?
40 ? "DISK CONTENTS:":TRAP 40
50 ? "  CORRELATION COEFFICIENT STATI
STICS"
60 ? "    1...PEARSON'S PRODUCT MOMEN
T"
70 ? "    2...SPEARMAN'S RANK ORDER"
80 ? "    3...POINT-BISERIAL"
90 ? "    4...PHI"
100 ? "  TESTS OF SIGNIFICANCE"
110 ? "    5...CHI SQUARE"
120 ? "    6...T-TEST: INDEPENDENT"
130 ? "    7...T-TEST: MATCHED PAIRS
"
140 ? "  UTILITIES"
150 ? "    8...REGRESSION LINES FOR F
UTURE"
160 ? "    PREDICTIONS"
170 ? "    9...MEAN AND STANDARD DEVI
ATION"
180 ? "   10...RANDOM SAMPLING FROM A
KNOWN"
190 ? "    POPULATION SIZE"
200 ? "  DOCUMENTATION...11"

210 ? :? "WHICH NUMBER (1-11)":INPUT
N:?"K"
220 IF N=1 THEN LOAD "D:PEARSON.BAS"
230 IF N=2 THEN LOAD "D:RANKORD.BAS"
240 IF N=3 THEN LOAD "D:CORRCOEF.BAS"
250 IF N=4 THEN LOAD "D:ZEROCOEF.BAS"
260 IF N=5 THEN LOAD "D:CHISQR.BAS"
270 IF N=6 THEN LOAD "D:TTESTIND.BAS"
280 IF N=7 THEN LOAD "D:MPTEST.BAS"
290 IF N=8 THEN LOAD "D:REGRESS.BAS"
300 IF N=9 THEN LOAD "D:MEANSD.BAS"
310 IF N=10 THEN LOAD "D:SAMPKND.BAS"
320 IF N=11 THEN GOTO 400
330 GOTO 40
400 ? "DOCUMENTATION"
410 ? "THIS DISK WAS AIMED AT INDIVIDU
ALS "
420 ? "WITH INTERMEDIATE ABILITY AND"
430 ? "TRAINING IN STATISTICS, SUCH AS
"
440 ? "BEHAVIORAL/SOCIAL SCIENTISTS."
450 ? "A STATISTICS DISK FOR THE MORE
"
460 ? "ADVANCED USER WAS UNDER PREPARA
TION"
470 ? "AS AT JULY, 1986."
480 ?
490 ? "DUE TO THE DIFFERING NEEDS OF"
500 ? "RESEARCHERS, THE PROGRAMS ON TH
IS"
510 ? "DISK HAVE BEEN KEPT SEPERATE, 5
0"
520 ? "AS TO ALLOW EASIER MODIFICATION
OF"

530 ? "A STATISTICAL PROGRAM, SUCH AS
"
540 ? "CHANGING KEYBOARD ENTRY TO "
550 ? "READ/DATA STATEMENTS SHOULD THI
S"
560 ? "BE PREFERRED, AND ALSO TO PRESE
RVE"
570 ? "COMPUTER MEMORY SPACE BY NOT "
580 ? "KEEPING UN-NEEDED PROGRAM LINES
"
590 ? "WITHIN IT."
600 ? :? "PRESS RETURN":DIM A$(1)
610 ? "TO CONTINUE":INPUT A$
620 ? "K"
630 ? "FOR EXPLANATIONS OF THE STATIST
ICS,"
635 ? "SUCH AS THE ASSUMPTIONS THEY WE
RE "
636 ? "BASED ON, AND WHAT THE TERMS ME
ANT,"
640 ? "THE USER IS REFERRED TO THE
"
650 ? "LITERATURE, SUCH AS KERLINGER'S
"
660 ? "'FOUNDATIONS OF BEHAVIORAL RESE
ARCH'"
670 ? "AND KLUGH'S 'STATISTICS: THE"
680 ? "ESSENTIALS FOR RESEARCH'"
690 ? :?
700 ? "PRESS RETURN"
710 ? "TO RETURN TO MAIN MENU.":INPUT
A$:?"K"
720 GOTO 40

1 REM #####
2 REM # PEARSON PRODUCT MOMENT #
3 REM # CORRELATION COEFFICIENT #
4 REM #   by D. S. Urquhart   #
5 REM # Published by Atari Computer #
6 REM #   Enthusiasts (N.S.W.)   #
7 REM #   AUGUST 1986           #
8 REM #####
10 ? "K":? "PEARSON PRODUCT MOMENT COR
RELATION "
11 ? "  COEFFICIENT"
20 ? "CREATED BY DONALD S. URQUHART"
30 ? :OPEN #1,0,0,"D:SCATTERG.RAM":DIM
X$(4)
35 ? "'X' AND 'Y' TYPE COORDINATES IN
USE."
36 ? "INPUT DATA AS REQUIRED.":?
40 TRAP 1200:?"TYPE IN AN X VALUE. T
"
0 END DATA INPUT TYPE 'END'.":INPUT X
$:IF X$="END" THEN 200
50 X=VAL(X$):PRINT #1,X
60 TRAP 1300:?"TYPE IN CORRESPONDING
Y VALUE":INPUT Y:PRINT #1,Y
62 IF ZX<X THEN ZX=X
63 IF MX>X THEN MX=X
64 IF ZY<Y THEN ZY=Y
65 IF MY>Y THEN MY=Y
70 XY=XY+X*Y:SX=SX+X:SY=SY+Y:M=M+1:XX=
XX+X*X:YY=YY+Y*Y:GOTO 40
200 TRAP 2200:R=(XY-(SX*SY/M))/SQR((XX
-(SX*SX/M))*(YY-(SY*SY/M)))
205 ? "K"
210 ? :? "PEARSON PRODUCT MOMENT CORRE
LATION COEFFICIENT=":R
220 ? :? "MEAN OF X IS ":SX/M
230 ? "MEAN OF Y IS ":SY/M
240 ? :? "STANDARD DEVIATION OF X IS "
:SQR(XX/M-SX/M)
250 ? "STANDARD DEVIATION OF Y IS ":SQ
R(YY/M-SY/M)
290 ? :? "FOR A CORRECT SCATTERGRAM AL
L X AND "
292 ? "Y'S SHOULD HAVE POSITIVE SIGNS.
"
300 ? "DO YOU WANT A SCATTERGRAM (Y/M
?):INPUT X$:IF X$="N" THEN STOP
309 ZX=ZX-MX:ZY=ZY-MY
310 IF ZX<=19 AND ZY<=19 THEN GRAPHICS
3:A=19:GOTO 356
330 IF ZX<=39 AND ZY<=39 THEN GRAPHICS
5:A=39:GOTO 356
340 IF ZX<=79 AND ZY<=79 THEN GRAPHICS
7:A=79:GOTO 356
345 IF ZX<=159 AND ZY<=159 THEN GRAPHI
CS 8:A=159:SETCOLOR 2,0,0:GOTO 356
350 ? "X OR Y VALUES TOO LARGE":STOP
356 CLOSE #1:OPEN #1,4,0,"D:SCATTEI
AM":REM LOCATION 0,0 BOTTOM LEFT OF SC
REEN. ALL X,Y ARE POSITIVE."
357 TRAP 400:INPUT #1,X,Y
358 X=X-MX:Y=Y-MY
370 COLOR 1:PLOT X,Y:GOTO 357
400 ? "DOES IT MEET LINEAR ASSUMPTION
(Y/N)":INPUT X$
410 IF X$="Y" THEN PRINT "CORRELATION
APPEARED TO BE CORRECT":INPUT X$:GOTO
500
420 IF X$<>"Y" THEN PRINT "CORRELATION
UNDERESTIMATED ASSOCIATION":INPUT X$
500 END
1200 ? "ERROR. RETRY THAT LAST X":GOT
0 40
1300 ? "ERROR. RETRY THAT LAST Y":GOT
0 60
2200 ? "ERROR. INSUFFICIENT ENTRIES"
2300 STOP

```

```

1 REM ##### YPE"
2 REM # RANK ORDER CORRELATION # 55 ? "'END'."
3 REM # COEFFICIENT # 57 ? :?
4 REM # by D. S. Urquhart # 60 ? "INPUT RANKINGS OF A PAIR, WITH"
5 REM # Published by Atari Computer # 65 ? "CARRIAGE RETURN AFTER EACH 'X' A
6 REM # Enthusiasts (N.S.W.) # MD AFTER EACH 'Y'."
7 REM # AUGUST 1986 # 66 TRAP 75: ? "INPUT 'X'";:INPUT AS
8 REM ##### 70 IF AS="END" THEN 200
10 ? "K": ? "RANK ORDER CORRELATION COE 71 GOTO 80
FFICIENT"
20 ? "CREATED BY DONALD S. URQUHART" 75 ? "ERROR. RETRY THAT 'X' ENTRY"
30 ? 76 ? "AGAIN.":GOTO 66
40 DIM AS(100) 80 LET A=VAL(AS)
50 ? "DIRECTIONS: TO END DATA ENTRY T 81 TRAP 83: ? "INPUT 'Y'";:INPUT B
82 GOTO 90
83 ? "ERROR. RETRY THAT 'Y' ENTRY.":G
OTO 81
90 DD=(A-B)*(A-B)+DD:N=N+1
100 GOTO 60
200 TRAP 215: ?
210 P=1-(6*DD/(N*(N-1))):GOTO 220
215 ? "ERROR. RECHECK DATA OR CHOOSE"
216 ? "ANOTHER PROGRAM. PRESS 'RESET'
AND "
217 ? "START AGAIN.":STOP
220 ? "RANK ORDER CORRELATION=";P
225 ? "VARIANCE ACCOUNTED FOR=";P*P*10
0;: ? "%
230 END

1 REM ##### 41 ? "OBTAINED A SCORE WITHIN THE INT 160 LET Q=SUMML/SUMMT
2 REM # POINT-BISERIAL CORRELATION # ERVAL, AND M1 FREQUENCY OF STUDENTS WH
3 REM # COEFFICIENT # 0 LEFT WITH SCORE IN INTERVAL."
4 REM # by D. S. Urquhart # 49 ? : ? "INPUT X,Mh,M1"
5 REM # Published by Atari Computer # 50 TRAP 300: ? "INPUT X";:INPUT XS
6 REM # Enthusiasts (N.S.W.) # 51 IF XS="END" THEN 120
7 REM # AUGUST 1986 # 52 LET X=VAL(XS)
8 REM ##### 53 TRAP 430: ? "INPUT Mh";:INPUT MH
9 ? "K":DIM XS(100) 54 TRAP 450: ? "INPUT M1";:INPUT ML
10 ? "POINT-BISERIAL CORRELATION COEF. 59 MT=MH+ML
:": ? "ONE INTERVAL VARIABLE BY ONE": ? 60 LET SUMFXH=X*MH+SUMFXH
"DICHOTOMOUS VARIABLE" 70 LET SUMFXL=X*ML+SUMFXL
15 ? "CREATED BY DONALD S. URQUHART":P 80 LET SUMMT=SUMMT+MH+ML
RINT 90 LET SUMFXTXT=SUMFXTXT+X*MT
30 ? "AT END OF DATA STREAM TYPE 'END' 100 LET SUMMH=SUMMH+MH
FOR X VALUE." 110 LET SUMML=SUMML+ML
33 ? 115 GOTO 49
35 ? "DIRECTIONS (Y/N)?:":INPUT XS:IF 120 TRAP 400:LET MT=(SUMFXH+SUMFXL)/SU
XS="N" THEN 49 MMT
40 ? "E.G. X MAY BE A MID-POINT OF A S 130 LET MH=SUMFXH/SUMMH
CORE INTERVAL, Mh FREQUENCY OF RETUR 140 LET ML=SUMFXL/SUMML
NING STUDENTS WHO" 150 LET P=SUMMH/SUMMT

1 REM ##### 30 ? "-NOT FASHION CONSCIOUS."
2 REM # -0- CORRELATION COEFFICIENT # 35 ? "CREATED BY DONALD S. URQUHART"
3 REM # by D. S. Urquhart # 40 ? :DIM AS(1): ? "DIRECTIONS (Y/N)";:
4 REM # Published by Atari Computer # INPUT AS:IF AS<"Y" THEN 46
5 REM # Enthusiasts (N.S.W.) # 44 ? "'A'=TOTAL NUMBER OF ITEMS IN GRO
6 REM # AUGUST 1986 # UP 'A', AND SO ON. PROGRAM NOT SUITAB
7 REM ##### LE IF ONE OR MORE TOTALS WAS -VE."
10 ? "K":PRINT "-0- CORRELATION COEFFI 45 ?
CIENT:" 46 PRINT "INPUT A,B,C,D";
20 PRINT "MEASURES EXTENT OF ASSOCIATI 47 TRAP 100
ON": ? "BETWEEN TWO DICHOTOMOUS VARIABL 50 INPUT A,B,C,D
ES,": ? "SUCH AS MALE-FEMALE BY FASHION 55 PRINT
" 60 LET COEFF=(B*C-A*D)/SQR((A+C)*(B+D)
*(A+B)*(C+D))
70 PRINT "CORRELATION COEFFICIENT = ";
COEFF
72 COEFF=COEFF*COEFF*100
74 ? "VARIANCE ACCOUNTED FOR = ";COEFF
;"%"
80 END
100 ? "ERROR. RETRY THOSE ENTRIES,"
110 ? "AND NOTE THAT -VE SIGNS SHOULD
BE"
120 ? "AVOIDED":GOTO 46

```



```

1 REM ##### 40 INPUT H 650 ? "INPUT NUMBER OF COLUMNS";
2 REM # CHI SQUARE # 50 ? "INPUT NUMBER OF COLUMNS";
3 REM # by D. S. Urquhart # 60 INPUT I 114 IF DF<2 AND E>5 THEN GOTO 120
4 REM # Published by Atari Computer # 61 GOTO 70 115 GOTO 200
5 REM # Enthusiasts (N.S.W.) # 65 ? "ERROR, TRY YOUR LAST ENTRY AGAIN 120 IF DF<2 THEN X2=((ABS(O-E)-0.5)*(A
6 REM # AUGUST 1986 # ":GOTO 111 B5(O-E)-0.5)/E)+X2
7 REM ##### 66 ? "ERROR. TRY YOUR LAST ENTRY AGAI 130 IF DF>1 THEN X2=((O-E)*(O-E)/E)+X2
10 ? "K":? "CHI SQUARE:" 140 NEXT K
20 ? "CREATED BY DONALD S. URQUHART" 145 ?
30 ? :TRAP 32: "PAIRED 'O' AND 'E'S." 150 ? "CHI SQUARE = ";X2
31 GOTO 35 160 ? "WITH DEGREES FREEDOM = ";DF
32 TRAP 32: "ERROR. TRY THOSE LAST T 170 STOP
HREE ENTRIES" 200 ? "ERROR: CHI SUARE PARRAMETERS V
33 ? "AGAIN.":GOTO 35 IOLATED"
35 ? "INPUT NUMBER OF ROWS"; 210 ? "E TOO SMALL"

1 REM ##### 70 NEXT I N
2 REM #T-TEST FOR INDEPENDENT GROUPS# 75 I=0 390 PRINT
3 REM # by D. S. Urquhart # 76 ? :? :? 400 PRINT "T VALUE=";ABS(O)
4 REM # Published by Atari Computer # 80 FOR ZZZ=1 TO 60:TRAP 2000: "TYPE I 405 PRINT "WITH DEGREES OF FREEDOM="
5 REM # Enthusiasts (N.S.W.) # N AN ITEM OF GROUP B";:INPUT B 410 Q=(O*O)/((O*O)+P):R=5QR(Q)
6 REM # AUGUST 1986 # 100 G=G+B 420 PRINT
7 REM ##### 110 H=H+B^2 430 PRINT "POINT-BISERIAL CORRELATION
10 ? "K":DIM I$(1):PRINT "T-TEST FOR I 120 I=I+1 COEFFICIENT =";R
NDEPENDENT GROUPS" 130 NEXT ZZZ 450 S=Q*100
11 PRINT "CREATED BY DONALD S. URQUHAR 290 K=C/E 470 PRINT "VARIANCE ACCOUNTED FOR =";5
T" 300 L=G/I ;"X"
12 ? :TRAP 13:GOTO 17 310 M=(O-(C*C/E)+H-(G*G/I))/(E+I-2) 475 END
13 TRAP 13: "ERROR. CHECK YOUR DATA. 320 N=5QR(M*(E+I)/(E*I)) 480 ? "DATA NOT SUITABLE, CHOOSE ANOTH
":GOTO 17 ER TEST"
17 PRINT "NUMBER OF ITEMS IN GROUP 'A' 330 O=(K-L)/N 490 ? "OR TRY AGAIN WITH ATTENTION TO
";:INPUT GA YOUR"
18 PRINT "NUMBER OF ITEMS IN GROUP 'B' 335 P=E+I-2 500 ? "DATA ENTRY."
";:INPUT GB 340 PRINT 900 END
19 ? 350 PRINT "MEAN OF GROUP 'A'=";K 1000 ? "ERROR. RETRY THAT LAST PIECE
20 FOR I=1 TO GA:TRAP 1000: "TYPE IN 355 PRINT "MEAN OF GROUP 'B'=";L OF DATA"
AN ITEM OF GROUP A";:INPUT A 360 PRINT 1010 GOTO 20
30 C=C+A 370 PRINT "ESTIMATED STANDARD ERROR OF 2000 ? "ERROR. RETRY THAT LAST PIECE
50 D=D+A^2 THE" OF DATA AGAIN":GOTO 80
60 E=E+1 380 PRINT "DIFFERENCE BETWEEN MEANS=";

1 REM ##### 51 ? "INPUT A MATCHED PAIR, WITH A CAR 130 ? "K"
2 REM # MATCHED PAIRS T-TEST # RIAGE RETURN AFTER EACH 'X', AND AFTER 140 ? "T=";ABS(T)
3 REM # by D. S. Urquhart # EACH 'Y' ENTRY." 150 ? "WITH DEGREES OF FREEDOM=";DF:
4 REM # Published by Atari Computer # 52 TRAP 54: "INPUT 'X'";:INPUT X$:IF 170 ? "STANDARD DEVIATION OF DIFFERENC
5 REM # Enthusiasts (N.S.W.) # X$="END" THEN 100 E SCORES=";SD
6 REM # AUGUST 1986 # 53 X=VAL(X$):GOTO 55 180 ? "ESTIMATED STANDARD ERROR OF DIF
7 REM ##### 54 ? "ERROR. TRY THAT 'X' ENTRY AGAIN FERENCE SCORES=";SDBAR
10 ? "K":? "MATCHED PAIRS T-TEST" 190 END
20 ? "CREATED BY DONALD S. URQUHART" 200 ? "ERROR. PUSH 'RESET' AND BEGIN
30 ? AGAIN"
40 ? "DIRECTIONS: TO END DATA ENTRY T 57 ? "ERROR. TRY THAT 'Y' ENTRY AGAIN 210 ? "AFTER CHECKING YOUR DATA, OR TR
YPE 'END' WHEN PROMPTED FOR AN 'X' .":GOTO 55 Y"
VALUE." 70 PP=PP+X-D:LET N=N+1 220 ? "ANOTHER STATISTIC PROGRAM, AS T
42 ? "'X' AND 'Y' TOGETHER FORM A MATC HIS"
HED" 80 LET DD=DD+(X-D)*(X-D):GOTO 50
43 ? "PAIR." 100 TRAP 200:LET AVED=PP/N:SD=5QR((DD-
49 DIM X$(100) (PP*PP/N))/(N-1)) 230 ? "TEST MAY BE INAPPROPRIATE FOR Y
50 ? 120 LET SDBAR=SD/5QR(N):T=AVED/SDBAR:D OUR"
F=N-1 240 ? "DATA."

```

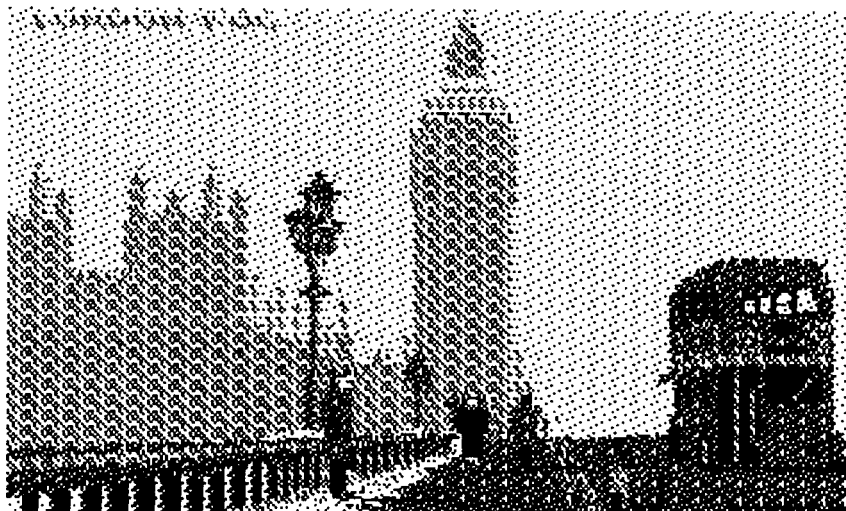
```

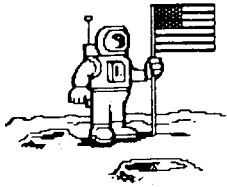
1 REM #####
2 REM # REGRESSION LINE FOR FUTURE #
3 REM # PREDICTION #
4 REM # by D. S. Urquhart #
5 REM # Published by Atari Computer #
6 REM # Enthusiasts (N.S.W.) #
7 REM # AUGUST 1986 #
8 REM #####
10 ? "K":? "REGRESSION LINE FOR FUTURE
PREDICTION"
20 ? "CREATED BY DONALD S. URQUHART"
30 ? :DIM A$(1)
39 GOTO 70
40 ? "ERROR. START AGAIN"
70 TRAP 40:PRINT "INPUT DATA"
90 ? "INPUT MEAN OF X";:INPUT MX
100 ? "INPUT MEAN OF Y";:INPUT MY
110 ? "INPUT STANDARD DEVIATION OF X";
:INPUT SDX
120 ? "INPUT STANDARD DEVIATION OF Y";
OR -";SEE
130 ? "INPUT CORRELATION COEFFICIENT";
$="N" THEN 330
220 GOTO 200
135 ? "INPUT NUMBER OF X,Y COORDINATES
USED IN DERIVING THE ABOVE STATISTIC
S.";:INPUT N
140 ? "PREDICT X OR Y?";:INPUT A$:IF A
$="X" THEN 300
160 IF A$="Y" THEN 200
170 GOTO 140
200 ? "INPUT X";:INPUT X:Y=R*(SDY/SDX)
*(X-MX)+MY
210 ? :? "PREDICTED Y=";Y
211 REM FOR FUTURE PREDICTIONS
212 SEE=SDY*(SQR(1-R*R))*(SQR(N/(N-2))
):? "STANDARD ERROR ESTIMATE IN Y IS +
-";SEE
215 ? :? "AGAIN (Y/N)?";:INPUT A$:IF A
$="N" THEN 330
220 GOTO 200
300 ? "INPUT Y";:INPUT Y:X=R*(SDX/SDY)
*(Y-MY)+MX
310 ? :? "PREDICTED X=";X
311 REM FOR FUTURE PREDICTIONS
312 SEE=SDX*SQR(1-R*R)*SQR(N/(N-2)):?
"STANDARD ERROR ESTIMATE IN X IS + OR
-";SEE
315 ? :? "AGAIN (Y/N)?";:INPUT A$:IF A
$="N" THEN 330
320 GOTO 300
330 END

1 REM #####
2 REM # MEAN AND STANDARD DEVIATION #
3 REM # by D. S. Urquhart #
4 REM # Published by Atari Computer #
5 REM # Enthusiasts (N.S.W.) #
6 REM # AUGUST 1986 #
7 REM #####
10 ? "K":DIM X$(100):PRINT "MEAN AND S
TANDARD DEVIATION"
15 PRINT "BY DONALD S. URQUHART"
17 ?
30 PRINT "DIRECTIONS: TYPE IN DATA WH
EN REQUESTED, AND AT CONCLUSION OF
ENTERING DATA, WHEN "
35 ? "PROMPTED FOR MORE TYPE IN 'END'.
"
65 PRINT
70 PRINT "TYPE IN DATA NOW"
75 INPUT X$
80 IF X$="END" THEN 130
85 TRAP 200:LET X=VAL(X$)
90 LET T=T+X
100 LET N=N+1:LET S=S+X*X:GOTO 70
130 TRAP 300:LET A=T/N:LET D=SQR(S/N-A
*A)
190 ? :? :? " AVERAGE: ";A:
? " STANDARD DEVIATION: ";D
195 END
200 ? "ERROR. RETRY THAT LAST ENTRY."
:GOTO 70
300 END

1 REM #####
2 REM # RANDOM SAMPLING FROM A #
3 REM # UNKNOWN POPULATION SIZE #
4 REM # by D. S. Urquhart #
5 REM # Published by Atari Computer #
6 REM # Enthusiasts (N.S.W.) #
7 REM # AUGUST 1986 #
8 REM #####
'9 DIM I$(1):? "K"
PRINT "RANDOM SAMPLING FROM A KNOWN
POPULATION SIZE"
12 PRINT "BY DONALD S. URQUHART"
13 PRINT
15 TRAP 90:PRINT "INPUT POPULATION SIZ
E";
16 INPUT POP
17 TRAP 95:? "INPUT SAMPLE SIZE";:INPU
T SAMPLE
18 PRINT "DO YOU WANT A PRINTOUT (Y/N)
";:INPUT I$:IF I$(<)"N" THEN 60
19 FOR RAND=1 TO SAMPLE STEP 1
20 LET N=INT((RND(0)*POP)+1)
30 PRINT N:PRINT
35 FOR WAIT=1 TO 600:NEXT WAIT
40 NEXT RAND
50 END
60 FOR RAND=1 TO SAMPLE
62 LET N=INT((RND(0)*POP)+1)
65 LPRINT N
70 NEXT RAND
80 END
90 ? "ERROR. TRY AGAIN.":GOTO 15
95 ? "ERROR. TRY AGAIN.":GOTO 17

```





COSMIC CRUSADERS



by Joe Delman

Cosmic Crusaders will be the most extraordinary, the most challenging, the most mind-boggling game to be released for Atari computers this year.

O.K., enough self-praise for the moment. My friends and I were wrapped a few years ago with a game called GALAXY from Avalon Hill. It was written in BASIC, but this didn't worry us as we engaged in battles of galactic conquest, with fleets of space ships marauding their way across space. With a maximum of 40 planets to a game, each player would send fleets of ships from a planet they owned to another (which they may or may not have owned). The fleets would arrive and either join their comrades already there, or fight the enemy-controlled planet.

Unfortunately, we felt there were some unfair aspects to this game, and many features we felt should have been present. I was able to add one or two of these, but realised everything we wanted could not be easily achieved. So I used the same idea Avalon Hill used, that of galactic conquest (which has kept me reading science fiction books for many years), and wrote COSMIC CRUSADERS. This took about 18 months (spending 8 hours a day with computers, and 3 hours a day travelling to work and home again somewhat suppresses the urge to do more computing once arriving home). The program was written in BASIC with a few machine code subroutines, then compiled using the ABC compiler from Monarch Data Systems. This gives sufficient speed even though there is a lot of background work done by the program, but I must admit that the real workhorse is one of the machine code routines. Once loaded in a 48K machine, the source code occupies all the memory with 13 bytes spare at the moment. Not only that, but all the DATA statements and the loading of the machine code subroutines is done by the title screen program because it would not fit into memory!

Enough history - now for the game! Up to 9 players compete to conquer the 60 planets that you can have in a game. Each player starts off with a BASE planet, which has:

- (a) a 1 character name.
 - (b) an INDUSTRY, which refers to how many ships that planet produces each "day" (ie. each turn).
 - (c) a BATTLE INDEX (B.I.), which refers to how well the ships at the planet fight.
 - (d) some SURVIVAL UNITS (S.U.), which is basically energy.
- and (e) some ships.

To actually start the game after booting it, you must tell the program how many players there will be, how many planets you want, each player's name the minimum distance between BASE planets, and the game difficulty. These are self-explanatory except that the minimum distance between BASE planets should be about 6 if you have up to 5 or 6 players, and less if there are more players. The first few games should be played at difficulty level 1 (the easiest). This is the

level WE STILL use to start the game!

Once this information is given your planetary stats are shown. Then the fighting begins. Players are randomly selected to enter their moves. See the detailed notes on side 2 of the game disk to learn what each command does. To get you started, this is what you should do first:

- (a) get a MAP of the galaxy and choose the nearest planet to attack.
- (b) find out how many Survival Units are required for the flight by using the TIME/DIST/ARRIVAL OF FLIGHT command. This will tell you the optimum speed to send your fleet plus the required Survival Units FOR 10 SHIPS (always remember this figure is for 10 ships!).
- (c) now launch the fleet. Send about 50 ships. The Survival Units you should give is 5 times the suggested S.U. (from point b above) plus about 3000 or 4000 for the battle.
- (d) if you like, use the FLEET STATUS command to check what you did. If something looks wrong, you can use the CHANGE SPEED/DEST. OF A FLEET command to redirect the fleet to the correct planet or back to your base planet, or change its speed.

Along with the game program on the disk you buy from the Software Library, there are two utility programs. Each reads the data from a saved game. Their functions are:

COSMAP1.CMP - this program prints out a map of the galaxy. If you have a Gemini 10X (or 15X) printer you can get an enlarged map with planets easier to see. For other printers, a smaller map is printed (the planet "." cannot be distinguished on this smaller map, so you should mark it out yourself).

COSREP1.CMP - this program can be used when you finish a session of COSMIC CRUSADERS to print out a report for each player. This report gives all planetary and fleet information for all players which can be used to remember what your doing until next time you play. You can also use it to plan future strategies.

Both the above programs are run from the L (BINARY LOAD) menu option of DOS 2 or its equivalents in other DOS versions.



☆☆☆ SOFTWARE EXCHANGE

By Philip Hayne

Greetings program searchers. This issue we present a FULL LIST of all the PROGRAMS and DISKS available in the Software Exchange! Wow.



Firstly the new arrivals this issue are: INSIDE INFO Vol #8, this covers issues #23-24. The second volume of the SHOW-OFF disk. And two more ANTIC disks, C.U.E.S. EDPACK #1 and the ARTDOS disk.

Just remember all disks can be bought at the monthly meetings, or by mail: A.C.E.(N.S.W) P.O. BOX 4514 Sydney 2001

A.C.E.(N.S.W.) SOFTWARE LIST as of August 1986

INSIDE INFO Vol 1 \$6			
LOTTO .BAS 19	SPIRALS .BAS 11	SELECTOR.BAS 19	GR8TEXT .BAS 18
SHELL .BAS 8	ANTIC4 .BAS 10	GTIA1 .BAS 9	GTIA2 .BAS 9
GTIA3 .BAS 10	GTIA4 .BAS 5	GTIA5 .BAS 9	GTIA6 .BAS 9
DLI .SRC 12	ORGAN .BAS 16	ATARI .BAS 15	GTIADEMO.BAS 14
ROTATE .SRC 10	BALL .BAS 9	BRASS .BAS 6	CONE .BAS 6
DIZZY .BAS 17	ESCAPE .BAS 8	GRENHOLE.BAS 11	HYPNOSIS.BAS 8
MELON .BAS 10	POLES .BAS 8	PSYCHED .BAS 11	ROLLS .BAS 7
SAS .BAS 9	STRIPES .BAS 9	WHIRL .BAS 10	MASTMIND.BAS 34
SNAKE .BAS 34	SQUARES .BAS 24	COLOURS .BAS 15	FLASH .BAS 6
FLASH .SRC 11	PACMAN .BAS 21	CHESS .BAS 16	DOGGIES .BAS 56
DOGGIES .SRC 20	PROGLIST.LST 6	GRAB .BAS 34	BOXES .BAS 49
GREEK .BAS 15	ROSE .BAS 7		

INSIDE INFO Vol 2 \$6			
FINESCRL.SRC 20	FINESCRL.BAS 11	HORZSCRL.SRC 12	HORZSCRL.BAS 26
BLOCK .BAS 8	MENU .BAS 8	CATALOG .BAS 71	CLOCK .BAS 10
SUMS .BAS 29	POLYGON .BAS 9	POKER .BAS 76	DOODLER .BAS 7
STRETCH .BAS 24	CREATE .BAS 5	MULTCOLR.BAS 7	SELECTOR.BAS 23
AUDCTL .BAS 7	DIVISION.BAS 43	MULTIPLY.BAS 42	IMPFRACT.BAS 33
ADDFRACT.BAS 54	EQUFRACT.BAS 41	SUMS2 .BAS 20	CARTOONS.BAS 10
DOGG .DAT 1	HAGA .DAT 5	CHAR .DAT 3	PLUT .DAT 6
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BOOSTER .BAS 22	BOOSTXL .BAS 24	TICKTOCK.BAS 69	AUTOCAR1.BAS136

ANTIC's STELLA TRIO \$6

This disk contains three machine language games on a menu loader, they are:

Gauntlet	Planetary Attack game with multi-weapons and aliens.
Orbit	Dock with space station near a Black Hole, good one.
Defense	Rear Guard/Defender spin-off.

ANTIC's PROGRAMMER'S DESIGN TOOLS \$6

This disk consist of the following programs:

DATA BASE	FONT EDITOR	LABEL MAKER	DISK MENU	RENUMBER
PM DESIGNER	PROG SORTER	DISK FORMATR	BINARY MENU	RPM TESTER
SOUND LAB	SKETCH ART	PROG FILER	SUPER DUP.SYS	

ANTIC's C.U.E.S. Education Disk #1 \$6

TRAP	BAGELS	GEOGRPHY	ROMANS	MLTBINGO	SCRAMWDS	SINEWAVE
HANGMAN	BOURREAU	FANROSE	NMSTATES	MATHQUIZ	STATECAP	DIVISION

ANTIC's C.U.E.S Education Disk #2 \$6

It has the following Educational programs with a disk MENU:

MULTIPLY	REMAINDER	FUNCTION	SPELLING BEE	US STATES	METRIC
AMERICAS	SUPER LETTER	MATH PACK			

ANTIC's ASTRONOMY & METEOROLOGY \$6

This fascinating disk has these interesting programs:

ASTRONOMY COMET HALLEY SOLAR SYSTEM PLANETARIUM HURICANE TRACKER

ANTIC's KERMIT EMULATOR \$6

This is for file transfer between computers, and is ideal for 8-bit/ST porting.

ANTIC's HOMEPAK CUSTOMIZER \$6

Batteries Included's HOMEPAK program is a highly usefull trilogy of tools and this disk allows you to customize many of it's functions to your liking. It also allows DOS 2.5 ramdisks for 130XE's and upgraded XL's.

ANTIC's ARTDOS \$6

Load MICROPainter, KOALA, FONTS & TEXT files straight from DOS, with sample pics & fonts.

DOS	.SYS	39	FANCY1	.FNT	11	DUP	.SYS	90	FANCY2	.FNT	11
FANCY3	.FNT	11	GOthic	.FNT	9	MODERNE	.FNT	11	FANCY	.FNT	11
AVANT	.FNT	12	BLOCK	.FNT	12	JERRY	.FNT	11	JIGSAW	.FNT	11
HEBREW	.FNT	11	HIERO	.FNT	11	SCRIPT	.FNT	9	COMPUTER	.FNT	9
STRANGE	.FNT	9	STOP	.FNT	9	SPACE	.FNT	9	ROMAN	.FNT	9
GREEK	.FNT	9	OUTLINE	.FNT	12	POOH	.PIC	17	FOG	.PIC	18
BLUANGEL	.MIC	62	GRIFFIN	.PIC	31	SNOW	.PIC	27	BOAT	.PIC	27
SUN	.PIC	32	GIRL	.PIC	43	SUNSET	.PIC	28	WEEDS	.PIC	26

SHOW-OFF DISK Vol #1 \$6

This fun disk has the following BASIC and Machine Language programs
APPLE KILL COMMODORE KILL AMIGA-BALL BALLSONG ROCKET'N'ROBOT
JANES BOXES
AND FIVE MUSIC PROGRAMS. There is also a very multi-colored disk menu.

SHOW-OFF DISK Vol #2 \$6

This disk contains the following all Machine Language DEMO programs
FUJIBONK EARTH STARS PLAYERS PAPERWGT SWANIE

ADVENTURE COLLECTION Vol:1 \$6

ESCAPE.BAS	Escape from the dungeon of the gods
KIDNAP.BAS	Kidnapped
OPSAB.BAS	Operation: Sabotage
PHARAOH.BAS	Curse of the pharaoh

ADVENTURE COLLECTION Vol:2 \$6

ADVENT5D.BAS	Adventure in the 5th dimension
CRASH.BAS	Crash Dive
UNCLE.BAS	Mean old uncle Henry
VANDEN.BAS	Adventure at Vandenburg Force Base

ATARI XL/XE TRANSLATOR \$6

This disk is the official ATARI Translator for XL and XE owners. It



provides a replacement operating system similiar to the 400/800 Rev 'B' O.S.

The disk is double-sided, side A being for normal use, while side B is for heavy translation and also for DOS 3.

FIG-FORTH \$6

This is the FORTH Interest Group's version 1.4s implementation of the language. With full extensions of special ATARI verbs and commands for sound, graphics, and I/O. Complete with doco sheets.

COMPUTER CRICKET \$6

This is a game by K.J.BRICKNELL, simulating limited over and full series cricket. The game features user defined or real team players, one or two player option, a full scoreboard, Richies summary, and printout of game stats at end of play. Game doco is also on disk.

DIGITISED PHOTOS \$6

This disk contains four digitized images in the GTIA mode. The images can be viewed in each of the three GTIA modes and in any color, in addition to a pulsating color flow.

SLIDE SHOW Vol:1 \$6

This is an excellent demonstation disk to show the fine artwork that can be achieved on the ATARI. The pictures were all drawn by Ian Champ on an ATARI Touch Tablet. Each picture is display for 30 seconds then faded out to the next picture like a video mixer.

DOS 2.5 \$5

This is ATARI's latest DOS. It is upwardly compatible with DOS 2 and includes a DOS 3 to DOS 2.5 converter. Like DOS 3 it has two modes of density: SINGLE (810) and Enhanced (1050), but with a file structure common to both. Includes doco sheets.

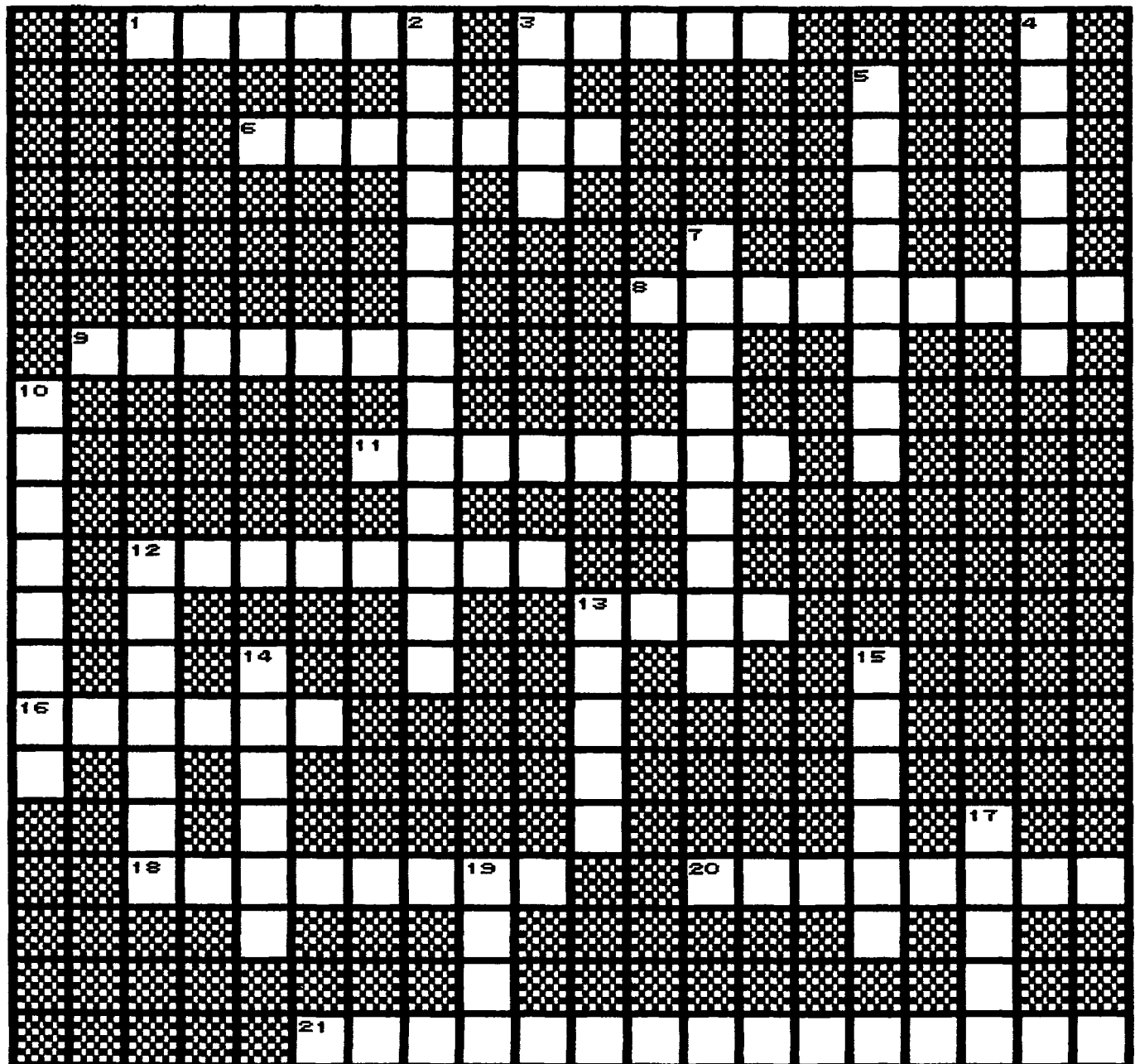
AMERICA'S CUP \$6

This is a surperb simulation of the America's Cup contest between Australia II & Liberty. Ken Hall's in depth simulation allows you to take advantage of wind/weather changes, sea depths, craft parameters and allows you to sail one of the six Newport courses.

COSMIC CRUSADERS \$6

Become warlord of the cosmos as you conquer planets, by using brute strength or quiet diplomacy, you build up an empire so large that it installs fear into your enemies. Joe Delman's Cosmic Crusaders enables up to nine players to battle, but remember only one can be victorious.





ACROSS CLUES

1. THEY MADE A TV SOAPIE A GAME?
3. HE IS A BARBARIAN
6. AN ALTERNATIVE
8. DALEY THOMPSON WON THIS AT THE XIII COMMONWEALTH GAMES
9. ST'S LOVE TO SIT IN THE SANDPIT MAKING ...
11. 'UHOH THE FAT GREEN GUY IS TRYING TO KICK ME IN THE HEAD'
12. A POPULAR MOVIE MADE INTO A GAME, THESE GUYS HATE WATER
13. A POPULAR ADVENTURE SERIES
16. MOONCAT
18. MAD MAGAZINE'S COMIC STRIP COME GAME
20. THE QUEST OF THE AVATAR
21. 'THIS IS UNITED 260, HEADING 090, DESCENDING TO 1000 FEET'

DOWN CLUES

2. WWII SUBMARINE SIMULATION
3. A POPULAR THEATRE SHOW.
4. 'NIGEL MANSEL IS PULLING IN FOR A ...'
5. AN ULTIMA TYPE ADVENTURE
7. 3 DIMENSIONAL ARCADE GRAPHIC ADVENTURE ON ANOTHER PLANET
10. OMNITRENDS ... HINT IT IS A LARGE PLACE
12. ANOTHER MOVIE MADE INTO A GAME
13. THE MARK OF ... AN SWASHBUCKLING ARCADE GAME
14. I'M ... THE SAILOR MAN
15. THE ROBOT IN HITCHHIKER'S GUIDE TO THE GALAXY
17. THE COMPANY IN HACKER
19. AN ST GRAPHIC ADVENTURE

MEETBEAT

by Ian Murray
June and July Meetings (ACE NSW)

Hello! I'm back again after my little sojourn to the old country, but more of that elsewhere in this issue.

The June meeting saw a great deal of new software demonstrated. The first item to be demonstrated was one of the new additions to the club's software library, namely one of the new Antic disks. For further information on this and other Antic disks, please see or contact Philip Hayne, the club software librarian.

Craig Armsworth provided a very well informed demonstration of Ultima IV. For those of you who are apt to become involved with the odd adventure or two then this is one which will provide many hours of brain wracking. (I still haven't finished yet. Ed.). Another adventure, which is quite different to Ultima IV is Hacker. Several people tried with a great deal of vigour to show their knowledge of the game, but in the long term managed to convince everyone of their incompetence. Not the least of these people was yours truly. The game itself though is quite entertaining, and for all you would be 'Hackers' out there, provides a harmless outlet for your talents.

Other items of interest on show include a demonstration of TopDos by Jeff Maddock. A special price, for club members only, on the 256K upgrade for the 800XL was announced by Laurence Lam of Irason P/L. The price was \$90. For further information see the ad in Issue 25 of Inside Info. I also related some of my experiences of Atari in the UK during the course of the meeting, but for those of you who were not there, I will relate them in greater detail in a separate article.

The July meeting was eagerly awaited by all and sundry. The largest turnout of members and visitors seen in quite some time, witnessed a very informative and visually stunning display. Representatives of Mobex gave a brief outline of the marketing strategies to be employed, and answered members questions. They also made an ongoing commitment to provide answers to any further questions which may come up. If you have any such questions, please forward them to the club committee, who, if they cannot provide the answer, will forward the request to Mobex. Requests may be forwarded to the club's GPO box, or via the question & answer box at the meetings.

The main highlight of the night though was the demonstration of the 520 & 1040 ST machines. Firstly, my thanks to Craig Armsworth, Philip Hayne and Gordon Drennan for supplying the equipment. Aside from the usual high quality graphics and excellent use of GEM, the Midi Interface demonstration was very impressive. The demo was achieved by using a Casio (talk about supporting Mobex) keyboard and a portable stereo system. The result was impressive, though I would imagine that the result would be nothing short of astounding when played through a high quality system. A range of graphics and music packages, along with First Word were on show.

Don't think for a minute that the 8-Bit owners were left out in

the cold, becaused what followed was a few 'what you can do, we can do for a fraction of the cost' demos. It's times like these when you can see just how far ahead of their time the 400 & 800 really were. Look forward to seeing some of these amazing demos on an upcoming disk from the software library. The demos were followed by 'Electraglide'. Fast paced arcade action is the way to describe this one. While it starts off looking fairly tame, you will soon become engrossed in completing each subsequent level in the game.

Peter Bamford has brought a copy of the 'Print Shop Companion', and should be well acquainted with it by the time of the August meeting. Anyone contemplating the purchase of the companion may like to ask his opinion before doing so.

Now that you know about some of the great things which you have been missing a recent meetings, please come along. By the way, if you have any new product, whether software or hardware, please think of the other members who may like to see it, and bring it along to the meetings. I would appreciate some notice though, so that I can schedule a time slot for your demo, so please call me before the meeting. See you at the next meeting then eh?

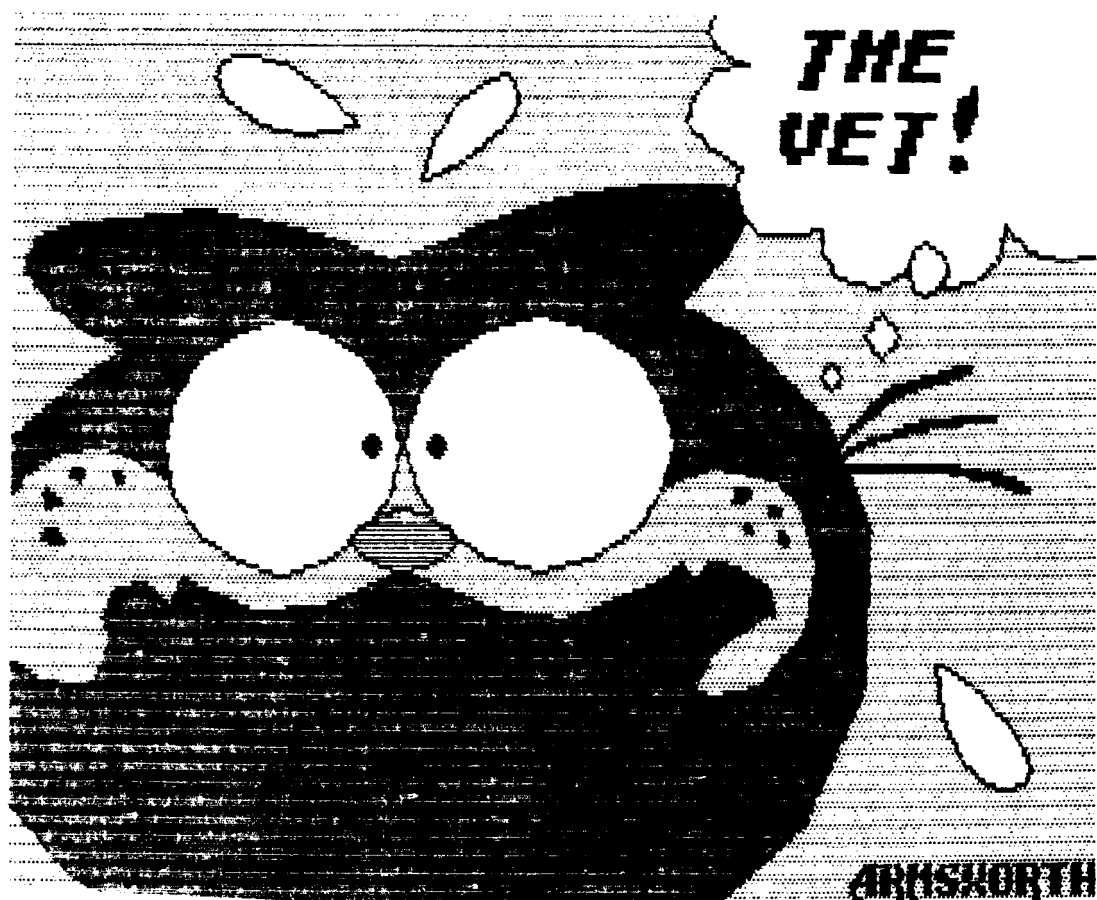


```

1 REM ##### 15 FOR TIME=0 TO 6          90 NEXT Y
2 REM #      PENCILS      # 20 C=0        95 C=0
3 REM #      by Mark Causton  # 30 FOR Y=0+TIME*26 TO 13+TIME*26:C=C+1 100 FOR Y=0 TO 13:C=C+0.5
4 REM #      Reprinted from M.A Atari # 40 COLOR C:PLOT 5,13+TIME*26:DRANTO 15 110 COLOR C:PLOT 16,Y+TIME*26:DRANTO 7
5 REM #      Computer Club June 1986 # ,Y 0,Y+TIME*26:NEXT Y
6 REM #      Published by Atari Computer # 50 NEXT Y 130 FOR Y=13 TO 26:C=C+0.5
7 REM #      Enthusiasts (N.S.W.) # 70 FOR Y=13+TIME*26 TO 26+TIME*26:C=C- 140 COLOR C:PLOT 16,Y+TIME*26:DRANTO 7
8 REM #      AUGUST 1986 # 1 0,Y+TIME*26:NEXT Y
9 REM ##### 80 COLOR C:PLOT 5,13+TIME*26:DRANTO 15 150 NEXT TIME
10 GRAPHICS 9 ,Y 160 GOTO 160

```





******* ATARI COMPUTER ENTHUSIASTS (NEW SOUTH WALES) *******
INFORMATION 1986

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All payments may be made at any meeting or by mail. All cheques and Money Orders should be made payable to Atari Computer Enthusiasts (N.S.W.). All correspondence and Newsletter Exchange should be forwarded to:-

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SOFTWARE EXCHANGE

A full range of public domain software is available from the Software Exchange for \$6.00 per disk. A list of Software Exchange disks begins from INSIDE INFO No.26 and updates continue in subsequent issues.

ARTICLE/PROGRAM SUBMISSION

Articles for INSIDE INFO should reach the Editor as early as possible, and at least 2 weeks ahead of the release date. Disk submissions should use single density DOS 2 format. Modem submissions leave message on the board for the EDITOR. Submissions will entitle you to one Software Exchange disk free of charge.

MEETING DETAILS

Meetings are held at 6PM on the 2nd floor of the Y.W.C.A building, corner of Wentworth Avenue and Liverpool Street, Darlinghurst 2010.

UPCOMING MEETINGS:- **MONDAY SEPTEMBER 8**
MONDAY OCTOBER 13
MONDAY NOVEMBER 10. AGM

RENEWAL DATE

Atari Computer Enthusiasts (N.S.W.)
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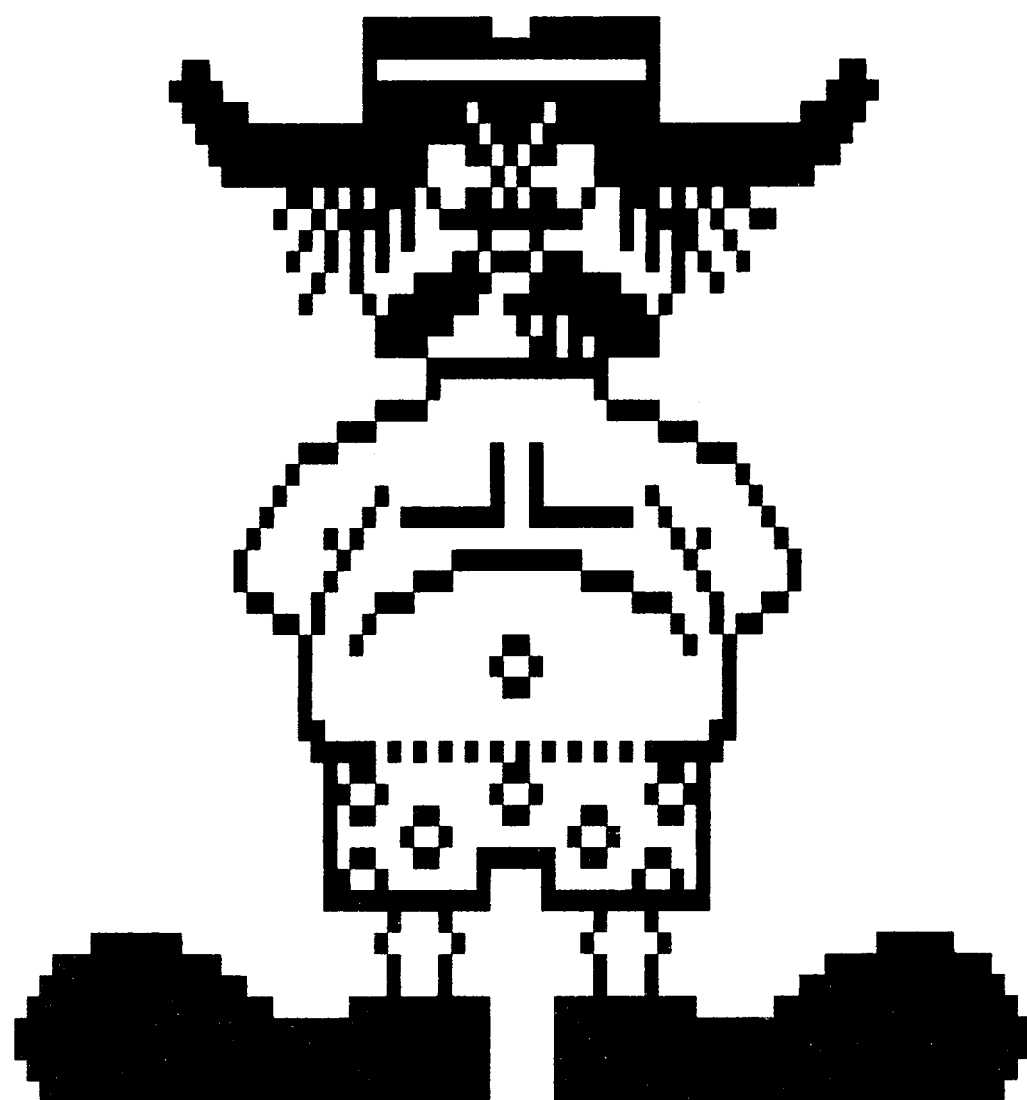
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IN THE COLD**



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